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UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/713,625	11/13/2003	Lawrence J. Karr	50037.0065USD2	2408

27488　　7590　　03/26/2007	EXAMINER	
MERCHANT & GOULD (MICROSOFT)	NGUYEN, DUC M	
P.O. BOX 2903		
MINNEAPOLIS, MN 55402-0903	ART UNIT	PAPER NUMBER
	2618	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/26/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

	Application No.	Applicant(s)
Office Action Summary	10/713,625	KARR ET AL.
	Examiner	Art Unit	
	Duc M. Nguyen	2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>24 January 2007</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>*12-19 and 44-55*</u> is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>*12-19, 44-55*</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some * c)☐ None of:

     1.☐ Certified copies of the priority documents have been received.

     2.☐ Certified copies of the priority documents have been received in Application No. _____.

     3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

This action is in response to applicant's response filed on 1/24/07. Claims 12-19, 44-55

are now pending in the present application. **This action is made final.**

Claim Rejections - 35 USC ϶ 103

1.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

2.   Claims **12-17, 19, 44-45, 47, 50-51, 55** are rejected under 35 U.S.C. 103(a) as being

unpatentable by **Lorang et al** (US 5,548,814) in view of **Chadwick** (US **5,168,271**) and **Gaskill**

et al (US **5,301,358**).

Regarding claim **12**, **Lorang** discloses a broadcast transmitter (see Fig. 3), comprising:

an input-output controller (72) coupled to a first input interface (82) and to a buffer

memory 78 (see Fig. 3 and col. 6, lines 40-58);

a control processor (72) coupled to said input-output controller and to a second input (84)

interface (see col. 7, lines 1-8) ;

a precision time base coupled to said control processor (inherent component in order to

provide clock signals to the processors and/or oscillators for operating the transmitter device);

an encoding engine coupled to said input-output controller, said control processor,

and to a first memory (see col. 7, lines 9-11 noting for the Rx/Tx device and see Fig. 10

regarding baseband processor components of a Rx/Tx device); and

a subcarrier signal generator, coupled to said encoding engine, said control processor, a

second memory, and to a subcarrier output (see col. 7, lines 9-11 noting for the Rx/Tx device and

see Fig. 10 regarding baseband processor components of the Rx/Tx device).

Here, although Lorang is silent with a subcarrier generator, it is noted that since **Lorang**

suggests using standard paging FM architecture for the Rx/Tx device's communication mode

(see col. 10, lines 53-64), and since the standard paging FM architecture uses FM subcarrier

signals for modulation, it is clear that **Lorang** would obviously suggest FM subcarrier signals as

disclosed by **Chadwick** (see Fig. 2). Therefore, it would have been obvious to one skilled in the

art at the time the invention was made to modify Lorang to incorporate an encoder and FM

subcarrier signals for modulation as taught by **Chadwick**, for utilizing advantages of FM

subcarrier communication protocol such as low power transmission.

However, Lorang fails to teach a variable tuning antenna for the mobile paging device.

However, Gaskill teaches a variable tuning antenna for a mobile device (see Abstract, Fig. 1),

wherein the antenna is periodically retuned during a listener interval, prior to the receipt of a

packet of information (see col. 3, lines 1-20). Therefore, it would have been obvious to one

skilled in the art at the time the invention was made to incorporate teaching of Gaskill to Lorang

to provide a variable tuning antenna for the paging transceiver in Lorang as well, for improving

data reception quality. Since the broadcast data in Lorang would implicitly be scheduled for

transmission (see Lorang, col. 5, lines 17-22), Lorang in view of Gaskill, would teach a mobile

transceiver that adjusts a variable tuning element configured to tune an antenna in response to a

scheduled message reception as claimed, for improving data reception quality.

Regarding claim **13**, **Lorang** discloses the control processor includes at least one of a

microprocessor, microcontroller, programmable logic array, programmable gate array, and an

ASIC as claimed (see Fig. 10 regarding baseband processor components of the Rx/Tx device).

Regarding claim **14**, it would have been obvious to one skilled in the art at the time the

invention was made to modify Lorang to utilize field-programmable gate array for the input-

output controller, for utilizing advantages of the field-programmable gate array such as low cost,

fast turn around (i.e, designs can be placed on an FPGA in typically a few minutes).

Regarding claim **15**, **Lorang** discloses the first input interface further comprises at least

one of an RS-422 interface, an RS-232 interface, an IEEE-1394 interface, a USB interface, or an

Ethernet interface as claimed (see col. 6, lines 60-61).

Regarding claim **16**, it would have been obvious to one skilled in the art that the Ethernet

interface as disclosed by Lorang (see col. 6, lines 60-61) could also be used for the second

interface (84) as well, for interfacing to the PSTN/PDN network (see col. 7, lines 4-8).

Regarding claim **17**, since the use of 1-ppm oscillator as a precision time base is well

known in the art, it would have been obvious to one skilled in the art at the time the invention

was made to modify Lorang to provide a 1-ppm oscillator for the precision time base as claimed,

for utilizing advantages of this standard 1-ppm oscillator such as cost.

Regarding claim **19**, it would have been obvious to one skilled in the art at the time the

invention was made to modify Lorang to utilize field-programmable gate array for the

modulator, for utilizing advantages of the field-programmable gate array such as low cost, fast

turn around (i.e, designs can be placed on an FPGA in typically a few minutes).

Regarding claim **44**, it is rejected for the same reason as set forth in claim 12 above

regarding the FM subcarrier signal generator. In addition, **Lorang** as modified would disclose

data source with formatted data (see source PC 48 in Fig. 11 and col. 5, lines 15-21), a mobile

device that is configured to receive data in a broadcast mode and a localcast mode (see Fig 11

and col. 12, lines 42-45), and that the FM subcarrier baseband signals is transmitted to the

mobile device in accordance with a predetermined schedule (see col. 4, lines 60-62 and col. 5,

lines 20-21), such that the mobile device receives the FM subcarrier baseband signals when in

the broadcast mode (see Fig 11 and col. 12, lines 42-45).

Regarding claim **45**, it is rejected for the same reason as set forth in claim 44 above. In

addition, as admitted by applicant in [0036], a High-Level Data Link Control (HDLC) protocol is

a standardized, bit oriented, switched and non-switches protocol, and can be found in ISO

standards such as ISO 3309 or ISO 4335. Therefore, it would have been obvious to one skilled in

the art at the time the invention was made to modify Lorang to utilize a HDLC protocol as

claimed, for utilizing advantages of a standardized protocol such as popularity and cost.

Regarding claim **47**, it is rejected for the same reason as set forth in claim 12 above. In

addition, **Lorang** as modified would disclose the encoded data corresponds to an output image

resulting from the means for encoding hashing (or interleaving) and placing packets within a

frame received as the formatted data (see **Chadwick**, Fig. 2 and col. 4, line 51 – col. 5, line 6).

Regarding claim **50**, the claim is interpreted and rejected for the same reason as set forth

in claim 48 above. In addition, **Lorang** as modified would disclose commands (i.e, specified

time and frequency of the message, see Lorange col. 5, lines 20-21), hashing (or interleaving, see

Chadwick, Fig. 2), filtering and amplifying (see Lorange, Fig. 12). As to the claimed limitation

regarding the time-diversity stages, it is noted that the use of a transmit diversity is well known

in the art (i.e, frequency diversity, space diversity, coded diversity, etc). Therefore, it would have

been obvious to one skilled in the art at the time the invention was made to modify Lorang to

transmit the message with time-diversity stages as claimed, for reducing/minimizing signal

reception errors caused by fading.

Regarding claim **51**, the claim is interpreted and rejected for the same reason as set forth

in claim 45 above regarding the HDLC protocol.

Regarding claim **55**, the claim is interpreted and rejected for the same reason as set forth

in claim 50 above. In addition, **Lorang** as modified would disclose the subcarrier signal

generator is further arranged to modulate data corresponding to the output image utilizing

quadrature phase shift keying (see Chadwick, Fig. 2 regarding DQPSK modulator 130).

3.   Claim **18** is rejected under 35 U.S.C. 103(a) as being unpatentable by **Lorang** in view of

Chadwick and **Gaskill,** and further in view of **Cox** (US **5,732,333**).

Regarding claim **18, Lorang** as modified would disclose the subcarrier signal generator

is further comprised of a modulator (see modulator 130 in Fig. 2 of Chadwick), and an output

filter (see filter 336 in Fig. 10). Although Lorang as modified is silent on a digital-analog

converter, it is noted that since the modulator data are digital data, it is clear that a digital-analog

converter would be needed in order generate a carrier analog signal for RF transmission as

disclosed by **Cox** (see D/A 112 in Figs. 1 and 2). Therefore, the claimed imitation regarding a

digital-analog converter is made obvious by Lorang and Cox, in order to generate a carrier

analog signal.

4.   Claim **46** is rejected under 35 U.S.C. 103(a) as being unpatentable by **Lorang** in view of

Chadwick and **Gaskill,** and further in view of **Campana** (US **6,567,397**).

Regarding claim **46**, it is rejected for the same reason as set forth in claim 44 above. In

addition, since the use of a wildcard value in the address fileld to enable deliver of data to a

group of receivers is well known in the art as disclosed by **Campana** (see col. 2, lines 60-61), it

would have been obvious to one skilled in the art at the time the invention was made to modify

Lorang to create an address field corresponding to the formatted data, such that wildcard values

inserted into the address field, to enable deliver of data to a group of paging receivers, thereby

allow fewer channels to handle multiple broadcast transmitters (i.e, a single channel can be used

to broadcast a message to a plurality of receivers).

5.   Claims **48-49, 52-53** are rejected under 35 U.S.C. 103(a) as being unpatentable by

Lorang in view of **Chadwick** and **Gaskill,** and further view of **Weng** (US **4,856,003**).

Regarding claim **48**, it is rejected for the same reason as set forth in claim 44 above. In

addition, it would have been obvious to one skilled in the art at the time the invention was made

to modify Lorang to split the formatted data into a first stream and a second stream, interleave

bits from the first stream with bits from the second stream into separate segments, and merge the

segments in producing the encoded data as disclosed by **Weng** (see col. 2, lines 27-47), for error

correction (ECC or Forward-error-correction FEC) purpose.

Regarding claim 49, the claim is interpreted and rejected for the same reason as set forth in claim 48 above. In addition, **Lorang** as modified would disclose encoding the formatted data is further arranged to divide the merged segments into predetermined segments wherein in each segment corresponds to a predetermined number of symbols, such that the encoded data is produced (see **Weng**, col. col. 2, lines 27-47).

Regarding claims **52-53**, the claim is interpreted and rejected for the same reason as set forth in claims 48-49 above.

6.   Claim **54** is rejected under 35 U.S.C. 103(a) as being unpatentable by **Lorang** in view of **Chadwick** and **Gaskill,** and further in view of **Misaizu** (US **5,487,089**).

Regarding claim **54**, the claim is interpreted and rejected for the same reason as set forth in claim 50 above. In addition, since **Lorang** as modified would disclose the subcarrier signal generator is further arranged to modulate data corresponding to the output image utilizing quadrature phase shift keying (see Chadwick, Fig. 2 regarding DQPSK modulator 130), and since the QPSK modulator that modulates data correspond to symbol by symbol under the transmit clock timing is known in the art as disclosed by **Misaizu** (see col. 8, lines 1-5 and col. 9, lines 1-15), the claimed limitation is made obvious by Chadwick and Misaizu, so that the symbol can be modulated and transmitted in a frame according to transmitting timeslots.

Response to Arguments

7.   Applicant's arguments with respect to claims 12-19, 44-55 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8.   Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this

final action.

9.   The prior art made of record and not relied upon is considered pertinent to

applicant's disclosure.

See the attached PTO-892.

10.   **Any response to this final action should be mailed to:**

Box A.F.

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

(571) 273-8300 (for **formal** communications intended for entry)

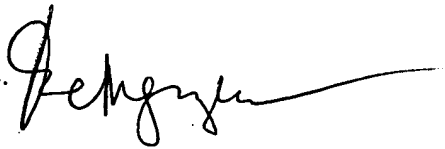(571)-273-7893 (for informal or **draft** communications).

Hand-delivered responses should be brought to Customer Service Window, Randolph Building, 401 Dulany Street, Alexandria, VA 22314.

Any inquiry concerning this communication or communications from the examiner should be directed to Duc M. Nguyen whose telephone number is (571) 272-7893, Monday-Thursday (9:00 AM - 5:00 PM).

Or to Matthew Anderson (Supervisor) whose telephone number is (571) 272-4177.

Duc M. Nguyen, P.E.

Mar 18, 2007